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CERTIFICATE OF ANALYSIS

Bechtel Hanford, Inc.
 3350 George Washington Way
 Richland, WA 99352

May 22, 2000

Attention: Joan Kessner

SAF Number	:	B99-014
Date SDG Closed	:	May 1, 2000
Number of Samples	:	Two (2)
Sample Type	:	Water
SDG Number	:	W03151
Data Deliverable	:	7-Day / Summary



I. Introduction

On May 1, 2000, two water samples were received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs:

<u>STLR ID#</u>	<u>BHI ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
9DCL1C10	B0NC23	WATER	5/1/00
9DCL1E10	B0XC24	WATER	5/1/00

II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analysis was: **Gas Proportional Counting**
 Total Strontium by method RICH-RC-5006

RECEIVED
 AUG 17 2000
EDMC

0002

III. Quality Control

The analytical results for each analysis performed under SDG W03151 includes a minimum of two Laboratory Control Samples (LCS) and one method (reagent) blank. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

IV. Comments


Gas Proportional Counting

Total Strontium by method RICH-RC-5006:

The achieved MDA for sample B0XC24 does not meet the CRDL due to a reduced volume analyzed. The detected activity exceeds the achieved MDA and the data are accepted for reporting. Except as noted, the laboratory control samples, batch blank and sample results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:


Jackie Waddell
Project Manager

SAMPLE RESULTS

LAB NAME: STL Richland

SDG: /RPT GRP: W03151 / 10436

LOT,RPT DB ID: J0E010140-1 9DCL1C10

MATRIX: WATER

CLIENT ID: B0XC23

DATE RECEIVED: 5/1/2000 11:00:00 AM

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT- CH
STRONTIUM	7.35E+02		1.9E+01	2.0E+02	3.29E+00	pCi/L	100.00%	RICHRC5006	DCL1C	0122424

Number of Results:

Result = IDL When Not Detected

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result <

Severn Trent Laboratories Richland
rptChemRadSample; v3.41

0004

SAMPLE RESULTS

LAB NAME: STL Richland

SDG: /RPT GRP: W03151 / 10436

LOT,RPT DB ID: J0E010140-2 9DCL1E10

MATRIX: WATER

CLIENT ID: B0XC24

DATE RECEIVED: 5/1/2000 11:00:00 AM

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT- CH
STRONTIUM	1.59E+03		5.5E+01	4.3E+02	1.31E+01	pCi/L	96.90%	RICHRC5006	DCL1E	0122424

Number of Results:

BLANK RESULTS

LAB NAME: STL Richland

SDG /RPT GRP: W03151 / 10436

LOT,RPT DB ID: JOE010000-424 DCLJ011B

MATRIX: WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT- CH
STRONTIUM	2.82E+00	U	1.7E+00	1.8E+00	2.94E+00	pCi/L	99.00%	RICHRC5006	DCLJ01	0122424

Number of Results:

LABORATORY CONTROL SAMPLE

LAB NAME: STL Richland SDG: /RPT GRP: W03151 / 10436
LAB SAMPLE ID: DCLJ012S MATRIX: WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
STRONTIUM	7.84E+01		6.4E+00	2.2E+01	3.65E+00	pCi/L	96.10%	6.80E+01	115.32%

Number of Results:

LABORATORY CONTROL SAMPLE**LAB NAME:** STL Richland **SDG: /RPT GRP:** W03151 / 10436**LAB SAMPLE ID:** DCLJ013S **MATRIX:** WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
STRONTIUM	7.19E+01		6.0E+00	2.0E+01	3.11E+00	pCi/L	96.40%	6.78E+01	106.05%

Number of Results:

Data Review Checklist RADIOCHEMISTRY

Lot Number: 30E010140				
Client ID: BHI				
Due Date: 5-8-00				
QC Batch Number: 0122424			SDG Number: W03151	
Method Test Parameter: TOTAL Sr				
Matrix: Water				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd Level Review (✓)
A. Calibration				
1. Is the calibration documentation included where applicable?			✓	
B. Sample Analysis				
1. Are the sample yields within acceptance criteria?	✓			
2. Were all sample holding times met?	✓			
3. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓	✓		
C. QC Samples				
1. Is the blank yield within acceptance criteria?	✓			
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓			
3. Does the blank result meet the Contract criteria?	✓			
4. Is the blank result < the Contract Detection Limit?	✓			
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓	
6. Is the LCS result within acceptance criteria?	✓			
7. Is the LCS yield within acceptance criteria?	✓			
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓			
9. Do the MS/MSD results and yields meet acceptance criteria?			✓	
10. Do the duplicate sample results and yields meet acceptance criteria?			✓	
D. Other				
1. Are all Nonconformances included and noted?			✓	
2. Are all required forms filled out?	✓			
3. Was the correct methodology used?	✓			
4. Was transcription checked?	✓			
5. Were all calculations checked at a minimum frequency?	✓			
6. Were units checked?	✓			✓

Comments on any "No" response: DCLIEI01 act>MIDA>CRDL - data accepted
OK Red vols = quick turn protocol

First Level Review: Michael Waddele Date: 5/6/00
 Second Level Review: [Signature] Date: 5/9/00

CHAIN OF CUSTODY

Bechtel Hanford Inc.			CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B99-014-02		Page #Error of #Error			
Collector R PFISTER			Company Contact Julian Laurenz		Telephone No. 372-9582		Project Coordinator TRENT, SJ		Price Code 1D		Data Turnaround 7 Days		
Project Designation 100-NR-2 Pump & Treat Operational Sampling			Sampling Location NR-2 PUMP + TREAT				SAF No. B99-014		Air Quality <input type="checkbox"/>				
Ice Chest No. N/A FRC 99.010			Field Logbook No. EL 1345-1		COA B101 B2 C560		Method of Shipment Govt Vehicle						
Shipped To Quanterra Incorporated			Offsite Property No. N/A				Bill of Lading/Air Bill No. NA						
POSSIBLE SAMPLE HAZARDS/REMARKS CONTAMINATION Special Handling and/or Storage			Preservation		N/A								
			Type of Container		PL								
			No. of Container(s)		2								
			Volume		500 ML								
SDG W03151			SAMPLE ANALYSIS Due 5-8		Total Rec'd 5-8								
JOED10140													
Sample No.		Matrix *		Sample Date		Sample Time							
Box C 23		WATER		5-1-00		0956		X		DCL IC			
Box C 24		WATER		5-1-00		0954		X		DCL IE			
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By R PFISTER		Date/Time 5/1/00 1007		Received By R. F. Allen		Date/Time 5-1-00 1007		Sample is less than 2000 p/cu gr 11:00 5-1-00				S=Soil SE=Sediment SO=Solid S=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By R. F. Allen		Date/Time 5-1-00 1100		Received By K. Schenberg		Date/Time 5-1-00 1100							
Relinquished By		Date/Time		Received By		Date/Time							
Relinquished By		Date/Time		Received By		Date/Time							
Relinquished By		Date/Time		Received By		Date/Time							
LABORATORY SECTION		Received By		Title		Date/Time							
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time							

③ 5/1/00

③ 5/1/00

③ 5/1/00

1

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad PrepRun Date: 5/02/00
Time: 8:40:06Parent Batch:
Associated Batches:*****
* QC BATCH: 0122424 *

Page: 1

TH: Total Strontium by GPC
CG: Sr-Total Prp/SepRC5006
SI: CLIENT: HANFORD

Analytical Due Date: 5/08/00

Project Manager:

Lot#	Analyt Due	Client Name	Count	Time	Mid/Ave Date/Time	Tracer ID	CRDL	Units	Screen Info - (Ci)	PM
Work Order	Client Matrix	Aliquot	Geometry			Spike ID			Alpha Beta	Bin
JOE010000-424 B	5/08/00									
DCLJ0-1-01 WATER					5/01/00 9:56		2.00E+00	pCi/L	**NA **NA	
Comments:										
JOE010000-424 C	5/08/00									
DCLJ0-1-02 WATER					5/01/00 9:56			pCi/L	**NA **NA	
Comments:										
JOE010000-424 C	5/08/00									
DCLJ0-1-03 WATER					5/01/00 9:56		2	pCi/L	**NA **NA	
Comments:										
JOE010140-001	5/08/00									JW2
DCL1C-1-01 WATER		.0000		.000	5/01/00 9:56			pCi/L	**NYS **NYS	
Comments: WATER 51-04/00										
JOE010140-002	5/08/00									JW2
DCL1E-1-01 WATER		.0000		.000	5/01/00 9:54		2.00E+00	pCi/L	**NYS **NYS	
Comments: WATER 51-04/00										

50ml

Total Number of Samples In Batch: 00005

Batch Information:

Dry Wt: N

Decay Correct: Y

Blank Sub: None

Call In:

Uncert: Both

Sigma: 1.960

ODR: Target List + Other Detected

BLANK CRDL
Strontium 90

2.00E+00

Tracer Yield
Strontium Trace (020-105)TypeQC Control Limits

** NYS = Not Yet Screened

** NA = Not Applicable

** Other = Other than Gross Alpha or Gross Beta

++ Indicates that Batch Information has changed for this sample. Print worksheet for details.

0014

COC Signature Page

W03151

Lot or Batch #:	Initials/Date	Procedure #
Released By	<u>RM 5-2-00</u>	<u>RIKRC0009</u>
Received	<u>dm 5-2-00</u>	<u>RKARC 5006</u>
Released By	<u>dm 5-5-00</u>	<u>n/a</u>
Received	<u>EPS 5/5/00</u>	<u>RD0003.2</u>
Released By	<u>CR 5/5/00</u>	<u>n/a</u>
Received	<u>JM 5-5-00</u>	<u>Radcalc V2.8.2</u>
Released By	<u>JM 5-5-00</u>	<u>n/a</u>
Received	<u>JW 5/5/00</u>	<u>RIKRC0002</u>
Released By	<u>JW 5/6/00</u>	<u>n/a</u>
Received		
Released By		<u>n/a</u>
Received		
Released By		<u>n/a</u>
Received		

RC-131, Rev. I, 6/99